

SEQUENCE LISTING

<110> Bird, Timothy A.
 Peschon, Jacques J.
 Sims, John E.
 Virca, G. Duke
 Willis, Cynthia R.

<120> Methods for Regulating Vascularization Using GEF
 Containing NEK-Like Kinase (GNK)

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<170> PatentIn Ver. 2.0

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 Ala Trp Gly Asn Gly Gly Asn Gly Arg Leu Ala Met Thr Pro Thr Glu
 675 680 685
 Arg Pro His Gly Ser Asp Ile Cys Thr Ser Trp Pro Arg Pro Ile Phe
 690 695 700
 Gly Ser Leu His His Val Pro Asp Leu Ser Cys Arg Gly Trp His Thr
 705 710 715 720
 Ile Leu Ile Val Glu Lys Val Leu Asn Ser Lys Thr Ile Arg Ser Asn
 725 730 735
 Ser Ser Gly Leu Ser Ile Gly Thr Val Phe Gln Ser Ser Ser Pro Gly
 740 745 750
 Gly Gly Gly Gly Gly Gly Gly Gly Glu Glu Glu Asp Ser Gln Gln Glu
 755 760 765
 Ser Glu Thr Pro Asp Pro Ser Gly Gly Phe Arg Gly Thr Met Glu Ala
 770 775 780
 Asp Arg Gly Met Glu Gly Leu Ile Ser Pro Thr Glu Ala Met Gly Asn
 785 790 795 800
 Ser Asn Gly Ala Ser Ser Ser Cys Pro Gly Trp Leu Arg Lys Glu Leu
 805 810 815
 Glu Asn Ala Glu Phe Ile Pro Met Pro Asp Ser Pro Ser Pro Leu Ser
 820 825 830

Ala Ala Phe Ser Glu Ser Glu Lys Asp Thr Leu Pro Tyr Glu Glu Leu
835 840 845

Gln Gly Leu Lys Val Ala Ser Glu Ala Pro Leu Glu His Lys Pro Gln
850 855 860

Val Glu Ala Ser Ser Pro Arg Leu Asn Pro Ala Val Thr Cys Ala Gly
865 870 875 880

Lys Gly Thr Pro Leu Thr Pro Pro Ala Cys Ala Cys Ser Ser Leu Gln
885 890 895

Val Glu Val Glu Arg Leu Gln Gly Leu Val Leu Lys Cys Leu Ala Glu
900 905 910

Gln Gln Lys Leu Gln Gln Glu Asn Leu Gln Ile Phe Thr Gln Leu Gln
915 920 925

Lys Leu Asn Lys Lys Leu Glu Gly Gly Gln Gln Val Gly Met His Ser
930 935 940

Lys Gly Thr Gln Thr Ala Lys Glu Glu Met Glu Met Asp Pro Lys Pro
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Asp Leu Asp Ser Asp Ser Trp Cys Leu Leu Gly Thr Asp Ser Cys Arg
965 970 975

Pro Ser Leu

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21

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<400> 6
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22

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22

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<400> 8

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22

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22

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<211> 821

<212> PRT

<213> Homo sapiens

<400> 18

Met	Ala	Ala	Glu	Glu	Val	Leu	Gln	Thr	Val	Asp	His	Tyr	Lys	Thr	Glu
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Ile	Glu	Arg	Leu	Thr	Lys	Glu	Leu	Thr	Glu	Thr	Thr	His	Glu	Lys	Ile
			20					25					30		

Gln	Ala	Ala	Glu	Tyr	Gly	Leu	Val	Val	Leu	Glu	Glu	Lys	Leu	Thr	Leu
		35					40					45			

Lys	Gln	Gln	Tyr	Asp	Glu	Leu	Glu	Ala	Glu	Tyr	Asp	Ser	Leu	Lys	Gln
	50					55					60				

Glu	Leu	Glu	Gln	Leu	Lys	Glu	Ala	Phe	Gly	Gln	Ser	Phe	Ser	Ile	His
65					70					75					80

Arg	Lys	Val	Ala	Glu	Asp	Gly	Glu	Thr	Arg	Glu	Glu	Thr	Leu	Leu	Gln
				85					90					95	

Glu	Ser	Ala	Ser	Lys	Glu	Ala	Tyr	Tyr	Leu	Gly	Lys	Ile	Leu	Glu	Met
			100					105					110		

Gln	Asn	Glu	Leu	Lys	Gln	Ser	Arg	Ala	Val	Val	Thr	Asn	Val	Gln	Ala
		115					120					125			

Glu	Asn	Glu	Arg	Leu	Thr	Ala	Val	Val	Gln	Asp	Leu	Lys	Glu	Asn	Asn
	130					135					140				

Glu	Met	Val	Glu	Leu	Gln	Arg	Ile	Arg	Met	Lys	Asp	Glu	Ile	Arg	Glu
145					150					155					160

Tyr	Lys	Phe	Arg	Glu	Ala	Arg	Leu	Leu	Gln	Asp	Tyr	Thr	Glu	Leu	Glu
				165					170					175	

Glu	Glu	Asn	Ile	Thr	Leu	Gln	Lys	Leu	Val	Ser	Thr	Leu	Lys	Gln	Asn
			180					185					190		

Gln	Val	Glu	Tyr	Glu	Gly	Leu	Lys	His	Glu	Ile	Lys	Arg	Phe	Glu	Glu
		195					200					205			

Glu	Thr	Val	Leu	Leu	Asn	Ser	Gln	Leu	Glu	Asp	Ala	Ile	Arg	Leu	Lys
	210					215					220				

Glu Ile Ala Glu His Gln Leu Glu Glu Ala Leu Glu Thr Leu Lys Asn
 225 230 235 240
 Glu Arg Glu Gln Lys Asn Asn Leu Arg Lys Glu Leu Ser Gln Tyr Ile
 245 250 255
 Ser Leu Asn Asp Asn His Ile Ser Ile Ser Val Asp Gly Leu Lys Phe
 260 265 270
 Ala Glu Asp Gly Ser Glu Pro Asn Asn Asp Asp Lys Met Asn Gly His
 275 280 285
 Ile His Gly Pro Leu Val Lys Leu Asn Gly Asp Tyr Arg Thr Pro Thr
 290 295 300
 Leu Arg Lys Gly Glu Ser Leu Asn Pro Val Ser Asp Leu Phe Ser Glu
 305 310 315 320
 Leu Asn Ile Ser Glu Ile Gln Lys Leu Lys Gln Gln Leu Met Gln Val
 325 330 335
 Glu Arg Glu Lys Ala Ile Leu Leu Ala Asn Leu Gln Glu Ser Gln Thr
 340 345 350
 Gln Leu Glu His Thr Lys Gly Ala Leu Thr Glu Gln His Glu Arg Val
 355 360 365
 His Arg Leu Thr Glu His Val Asn Ala Met Arg Gly Leu Gln Ser Ser
 370 375 380
 Lys Glu Leu Lys Ala Glu Leu Asp Gly Glu Lys Gly Arg Asp Ser Gly
 385 390 395 400
 Glu Glu Ala His Asp Tyr Glu Val Asp Ile Asn Gly Leu Glu Ile Leu
 405 410 415
 Glu Cys Lys Tyr Arg Val Ala Val Thr Glu Val Ile Asp Leu Lys Ala
 420 425 430
 Glu Ile Lys Ala Leu Lys Glu Lys Tyr Asn Lys Ser Val Glu Asn Tyr
 435 440 445
 Thr Asp Glu Lys Ala Lys Tyr Glu Ser Lys Ile Gln Met Tyr Asp Glu
 450 455 460
 Gln Val Thr Ser Leu Glu Lys Thr Thr Lys Glu Ser Gly Glu Lys Met
 465 470 475 480
 Ala His Met Glu Lys Glu Leu Gln Lys Met Thr Ser Ile Ala Asn Glu
 485 490 495
 Asn His Ser Thr Leu Asn Thr Ala Gln Asp Glu Leu Val Thr Phe Ser
 500 505 510
 Glu Glu Leu Ala Gln Leu Tyr His His Val Cys Leu Cys Asn Asn Glu
 515 520 525
 Thr Pro Asn Arg Val Met Leu Asp Tyr Tyr Arg Gln Ser Arg Val Thr
 530 535 540
 Arg Ser Gly Ser Leu Lys Gly Pro Asp Asp Pro Arg Gly Leu Leu Ser

545 550 555 560
 Pro Arg Leu Ala Arg Arg Gly Val Ser Ser Pro Val Glu Thr Arg Thr
 565 570 575
 Ser Ser Glu Pro Val Ala Lys Glu Ser Thr Glu Pro Ser Lys Glu Pro
 580 585 590
 Ser Pro Thr Lys Thr Pro Thr Ile Ser Pro Val Ile Thr Ala Pro Pro
 595 600 605
 Ser Ser Pro Val Leu Asp Thr Ser Asp Ile Arg Lys Glu Pro Met Asn
 610 615 620
 Ile Tyr Asn Leu Asn Ala Ile Ile Arg Asp Gln Ile Lys His Leu Gln
 625 630 635 640
 Lys Ala Val Asp Arg Ser Leu Gln Leu Ser Arg Gln Arg Ala Ala Ala
 645 650 655
 Arg Glu Leu Ala Pro Met Ile Asp Lys Asp Lys Glu Ala Leu Met Glu
 660 665 670
 Glu Ile Leu Lys Leu Lys Ser Leu Leu Ser Thr Lys Arg Glu Gln Ile
 675 680 685
 Ala Thr Leu Arg Ala Val Leu Lys Ala Asn Lys Gln Thr Ala Glu Val
 690 695 700
 Ala Leu Ala Asn Leu Lys Asn Lys Tyr Glu Asn Glu Lys Ala Met Val
 705 710 715 720
 Thr Glu Thr Met Thr Lys Leu Arg Asn Glu Leu Lys Ala Leu Lys Glu
 725 730 735
 Asp Ala Ala Thr Phe Ser Ser Leu Arg Thr Met Phe Ala Thr Arg Cys
 740 745 750
 Asp Glu Tyr Val Thr Gln Leu Asp Glu Met Gln Arg Gln Leu Ala Ala
 755 760 765
 Ala Glu Asp Glu Lys Lys Thr Leu Asn Thr Leu Leu Arg Met Ala Ile
 770 775 780
 Gln Gln Lys Leu Ala Leu Thr Gln Arg Leu Glu Asp Leu Glu Phe Asp
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 His Glu Gln Ser Arg Arg Ser Lys Gly Lys Leu Gly Lys Ser Lys Ile
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 Gly Ser Pro Lys Val
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<400> 19
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 35 40 45
 Gln Leu Glu Gln Leu His Gln Glu Ala Lys Arg Gln Glu Glu Val Leu
 50 55 60
 Ala Arg Ala Val Gln Glu Lys Glu Ala Leu Val Arg Glu Lys Ala Ala
 65 70 75 80
 Leu Glu Val Arg Leu Gln Ala Val Glu Arg Asp Arg Gln Asp Leu Ala
 85 90 95
 Glu Gln Leu Gln Gly Leu Ser Ser Ala Lys Glu Leu Leu Glu Ser Ser
 100 105 110
 Leu Phe Glu Ala Gln Gln Gln Asn Ser Val Ile Glu Val Thr Lys Gly
 115 120 125
 Gln Leu Glu Val Gln Ile Gln Thr Val Thr Gln Ala Lys Glu Val Ile
 130 135 140
 Gln Gly Glu Val Arg Cys Leu Lys Leu Glu Leu Asp Thr Glu Arg Ser
 145 150 155 160
 Gln Ala Glu Gln Glu Arg Asp Ala Ala Ala Arg Gln Leu Ala Gln Ala
 165 170 175
 Glu Gln Glu Gly Lys Thr Ala Leu Glu Gln Gln Lys Ala Ala His Glu
 180 185 190
 Lys Glu Val Asn Gln Leu Arg Glu Lys Trp Glu Lys Glu Arg Ser Trp
 195 200 205
 His Gln Gln Glu Leu Ala Lys Ala Leu Glu Ser Leu Glu Arg Glu Lys
 210 215 220
 Met Glu Leu Glu Met Arg Leu Lys Glu Gln Gln Thr Glu Met Glu Ala
 225 230 235 240
 Ile Gln Ala Gln Arg Glu Glu Glu Arg Thr Gln Ala Glu Ser Ala Leu
 245 250 255
 Cys Gln Met Gln Leu Glu Thr Glu Lys Glu Arg Val Ser Leu Leu Glu
 260 265 270
 Thr Leu Leu Gln Thr Gln Lys Glu Leu Ala Asp Ala Ser Gln Gln Leu
 275 280 285
 Glu Arg Leu Arg Gln Asp Met Lys Val Gln Lys Leu Lys Glu Gln Glu
 290 295 300
 Thr Thr Gly Ile Leu Gln Thr Gln Leu Gln Glu Ala Gln Arg Glu Leu
 305 310 315 320
 Lys Glu Ala Ala Arg Gln His Arg Asp Asp Leu Ala Ala Leu Gln Glu
 325 330 335

Glu Ser Ser Ser Leu Leu Gln Asp Lys Met Asp Leu Gln Lys Gln Val
 340 345 350
 Glu Asp Leu Lys Ser Gln Leu Val Ala Gln Asp Asp Ser Gln Arg Leu
 355 360 365
 Val Glu Gln Glu Val Gln Glu Lys Leu Arg Glu Thr Gln Glu Tyr Asn
 370 375 380
 Arg Ile Gln Lys Glu Leu Glu Arg Glu Lys Ala Ser Leu Thr Leu Ser
 385 390 395 400
 Leu Met Glu Lys Glu Gln Arg Leu Leu Val Leu Gln Glu Ala Asp Ser
 405 410 415
 Ile Arg Gln Gln Glu Leu Ser Ala Leu Arg Gln Asp Met Gln Glu Ala
 420 425 430
 Gln Gly Glu Gln Lys Glu Leu Ser Ala Gln Met Glu Leu Leu Arg Gln
 435 440 445
 Glu Val Lys Glu Lys Glu Ala Asp Phe Leu Ala Gln Glu Ala Gln Leu
 450 455 460
 Leu Glu Glu Leu Glu Ala Ser His Ile Thr Glu Gln Gln Leu Arg Ala
 465 470 475 480
 Ser Leu Trp Ala Gln Glu Ala Lys Ala Ala Gln Leu Gln Leu Arg Leu
 485 490 495
 Arg Ser Thr Glu Ser Gln Leu Glu Ala Leu Ala Ala Glu Gln Gln Pro
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 Gly Asn Gln Ala Gln Ala Gln Ala Gln Leu Ala Ser Leu Tyr Ser Ala
 515 520 525
 Leu Gln Gln Ala Leu Gly Ser Val Cys Glu Ser Arg Pro Glu Leu Ser
 530 535 540
 Gly Gly Gly Asp Ser Ala Pro Ser Val Trp Gly Leu Glu Pro Asp Gln
 545 550 555 560
 Asn Gly Ala Arg Ser Leu Phe Lys Arg Gly Pro Leu Leu Thr Ala Leu
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 Ser Ala Glu Ala Val Ala Ser Ala Leu His Lys Leu His Gln Asp Leu
 580 585 590
 Trp Lys Thr Gln Gln Thr Arg Asp Val Leu Arg Asp Gln Val Gln Lys
 595 600 605
 Leu Glu Glu Arg Leu Thr Asp Thr Glu Ala Glu Lys Ser Gln Val His
 610 615 620
 Thr Glu Leu Gln Asp Leu Gln Arg Gln Leu Ser Gln Asn Gln Glu Glu
 625 630 635 640
 Lys Ser Lys Trp Glu Gly Lys Gln Asn Ser Leu Glu Ser Glu Leu Met
 645 650 655

Glu Leu His Glu Thr Met Ala Ser Leu Gln Ser Arg Leu Arg Arg Ala
660 665 670

Glu Leu Gln Arg Met Glu Ala Gln Gly Glu Arg Glu Leu Leu Gln Ala
675 680 685

Ala Lys Glu Asn Leu Thr Ala Gln Val Glu His Leu Gln Ala Ala Val
690 695 700

Val Glu Ala Arg Ala Gln Ala Ser Ala Ala Gly Ile Leu Glu Glu Asp
705 710 715 720

Leu Arg Thr Ala Arg Ser Ala Leu Lys Leu Lys Asn Glu Glu Val Glu
725 730 735

Ser Glu Arg Glu Arg Ala Gln Ala Leu Gln Glu Gln Gly Glu Leu Lys
740 745 750

Val Ala Gln Gly Lys Ala Leu Gln Glu Asn Leu Ala Leu Leu Thr Gln
755 760 765

Thr Leu Ala Glu Arg Glu Glu Glu Val Glu Thr Leu Arg Gly Gln Ile
770 775 780

Gln Glu Leu Glu Lys Gln Arg Glu Met Gln Lys Ala Ala Leu Glu Leu
785 790 795 800

Leu Ser Leu Asp Leu Lys Lys Arg Asn Gln Glu Val Asp Leu Gln Gln
805 810 815

Glu Gln Ile Gln Glu Leu Glu Lys Cys Arg Ser Val Leu Glu His Leu
820 825 830

Pro Met Ala Val Gln Glu Arg Glu Gln Lys Leu Thr Val Gln Arg Glu
835 840 845

Gln Ile Arg Glu Leu Glu Lys Asp Arg Glu Thr Gln Arg Asn Val Leu
850 855 860

Glu His Gln Leu
865

2009-03-10 10:00:00